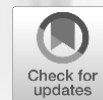


# Translation and validation of the Vietnamese version of the Pain Self-Efficacy Questionnaire in patients with cancer

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## Abstract

**Background:** The Pain Self-Efficacy Questionnaire (PSEQ) measures self-efficacy for pain management in patients with chronic pain, including cancer pain. Although the questionnaire has been translated into many other languages, it has not yet been translated and tested in Vietnam.

**Objective:** This study aimed to translate and validate the PSEQ into Vietnamese.

**Methods:** The PSEQ was translated into Vietnamese using Brislin's model. Next, the Vietnamese version of the questionnaire (Viet-PSEQ) was evaluated for content validity by six experts using the Item-Content Validity Index (I-CVI) and the Scale-Content Validity Index (S-CVI). The reliability of the questionnaire was examined with 30 patients with cancer, using test-retest reliability (Intra-Class Correlation - ICC) and internal consistency (Cronbach's  $\alpha$ ).

**Results:** The I-CVI values ranged from 0.5 to 0.88, and the S-CVI value was 0.93. The Cronbach's alpha was 0.91, and the ICC was 0.99 (95% CI: 0.949 – 0.997,  $p < 0.001$ ).

**Conclusion:** The Viet-PSEQ was found to be valid and reliable. Healthcare professionals can use this instrument to measure self-efficacy for pain management in patients with cancer in Vietnam.

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## Keywords

Cancer; pain self-efficacy questionnaire; reliability; validity

## Background

Pain is a common symptom in patients with cancer, occurring in 59% of patients being treated, 64% of advanced, metastatic, late-stage patients, 33% of patients after being cured, and 53% of patients at all disease stages ([Van den Beuken-van Everdingen et al., 2007](#)). Despite the high efficacy of pain relievers, pain control remains a persistent problem in patients with cancer ([Bibi et al., 2022](#)).

Uncontrolled cancer pain negatively affects daily activities, psychological well-being, increases disease severity, and reduces the patient's quality of life ([Sholjakova et al., 2018](#)). In fact, patients can even die of pain and exhaustion ([Duc, 2009](#)). Thus, optimal pain management is needed, which requires active involvement from patients with cancer, although their involvement is often limited ([McCracken, 1998](#)).

The involvement of patients with cancer is even more critical as the length of inpatient treatment shortens and the duration of outpatient treatment increases. Patients need to have the right knowledge, skills, and attitudes to manage their pain effectively ([National Comprehensive Cancer Network, 2016](#)). Therefore, pain management educational interventions for patients with cancer are essential. A systematic review of the effectiveness of educational interventions on pain management indicated that the self-relieve pain effect of patients with cancer is one of the essential outputs to evaluate program effectiveness. Interventions that affected the patient's pain self-relief evaluated self-pain relief, and most of the studies that evaluated self-pain relief measured it using the Pain Self-efficacy Questionnaire (PSEQ) ([Oldenmenger et al., 2018](#)).

The PSEQ, developed by [Nicholas \(2007\)](#), assesses the confidence level of patients with pain in performing household chores, socializing, work, and coping with pain. It is a 10-item questionnaire developed to assess the confidence of people with ongoing pain in performing activities while in pain. The PSEQ applies to all persisting pain presentations and enquires into the level of self-efficacy regarding a range of functions, including household chores, socializing, work, and coping with pain without medication. Each item is a Likert scale of 7 (0 = Not at all confident to 6 = Very confident) designed for self-completion. The maximum score for the questionnaire is 60 points, with a higher total score indicating a higher belief in self-soothing effectiveness.

The scale takes two minutes to complete and helps assess the impact that pain is having on a respondent's life. The scale can also help develop a formulation around psychological factors that influence someone's response to injury or

unpleasant physical sensations. The scale is predictive of functional gains after injury. The PSEQ has high validity and reliability, with a Cronbach's alpha of 0.92 and an Intra-Class Correlation (ICC) of 0.73 ( $p < 0.001$ ), and a total variable correlation coefficient in items from 0.67 and above (Nicholas, 2007).

The PSEQ has been translated from English into many other languages. However, to the best of our knowledge, a Vietnamese version of the PSEQ (Viet-PSEQ) is not available. Therefore, this study aimed to translate and validate the PSEQ into a Vietnamese version.

## Methods

### Study Design

This validation study was conducted from December 2021 to April 2022, and consisted of two phases: 1) translation and 2) validation (Figure 1).

### Translation Process

To translate the PSEQ into Vietnamese, Brislin's Model (Triandis & Brislin, 1984) was used, which includes four steps: 1) Forward translation from the source language version to the target language version, 2) Consultation with an expert panel, 3) Blind back-translation, and 4) Comparing the source language version and back-translated version for linguistic and cultural equivalence.

Before translating the questionnaire into Vietnamese, the authors received permission from the original author. The English version was translated into Vietnamese by an English teacher who holds a postgraduate degree in Public Health from Vinh Phuc College. The translation was then reviewed by an oncologist, a nurse (from the Oncology Department at K74 National Hospital), and a PhD doctor (from the Department of Internal Medicine at the Hospital of Osaka City University, Japan).

If the language was unclear or not culturally appropriate, the translation was modified after discussion between the researchers and the respondents. To ensure the accuracy of the translation, the Vietnamese version was back-translated into English by an expert (Assoc. PhD. Doctor at the Nuclear Medicine and Oncology Center, Bach Mai Hospital, and lecturer at Hanoi Medical University). The original English version and the back-translated version were evaluated by a native English teacher at BlueSky Foreign Language Center and were found to be semantically similar.

### Validation Process

After the translation process, the Vietnamese version of PSEQ was evaluated for content validity by six experts and for reliability by thirty patients with cancer.

### Content validity

The six experts consisted of two Oncologists, four nurses who have a certificate in taking care of cancer patients. All experts had working experience for more than five years. The content validity assessment was performed by experts who assess (a) the relevance of the question to the concept of self-relief pain as measured, (b) the level of clarity of the questions and (c) the coverage of the questions to different aspects of the concept of self-pain relief effectiveness to be measured. Contents b, and c, commented by experts. Content a is rated on a 4-point scale, divided into 4 levels: (1) Not relevant, (2) Slightly related, (3) Quite relevant, (4) Very relevant. The question encoding rated at 1 or 2 was classified as 0 (fail). Questions at level 3 or 4 was classified as 1 (pass) (Long, 2021).

The six experts were composed of two oncologists and four nurses who have a certificate in caring for patients with cancer, all with more than five years of working experience. They assessed (a) the relevance of the questions to the concept of self-relief pain, (b) the level of clarity of the questions, and (c) the coverage of the questions to different aspects of the concept of self-pain relief effectiveness to be measured. The experts commented on content b and c. Content a was rated on a 4-point scale, with 1 being "Not relevant" and 4 being "Very relevant". A rating of 1 or 2 was classified as 0 (fail), while a rating of 3 or 4 was classified as 1 (pass) (Long, 2021).

The content validity of the Viet-PSEQ was assessed by the Item- content value index (I-CVI) and Scale - content value index (S-CVI). I-CVI = Number of experts who rated the item as pass/Total number of experts asked; the minimum I-CVI acceptance score is 0.78 (Lenz, 2010). S-CVI = Average of I-CVIs; the minimum S-CVI acceptance score is 0.9 (Long, 2021).

### Reliability

The study involved thirty patients with cancer at the Palliative Care Department, Nuclear Medicine - Oncology Center, Vinh Phuc General Hospital. They were selected based on the following criteria: 1) aged 18 years or older, 2) diagnosis diagnosed cancer with pain, 3) pain score  $\geq 3$  points on the Numerical Rating Scale (NRS) scale at the time of selection, 4) medical treatment and/or radiation therapy, 5) without cognitive disorders, 6) able to listen, speak, read and write in Vietnamese, and 6) agreed to participate in the study.

Numerical Rating Scale (NRS) was used for patients to rate their pain on an integer scale from 0 to 10, with the pain severity classification as None (0), mild (1 - 3), moderate (4 - 6), and severe (7 - 10) (Hartrick et al., 2003). Demographic and clinical data were also gathered. The demographic data include age, gender, academic level, profession, marital status, residence, and primary caregiver.



Clinical data include type of cancer stage, type of cancer, therapy, and health insurance. Most information was obtained from medical records.

The reliability of the Viet-PSEQ was tested two times: 1) right after the patient entered inpatient treatment and 2) before the patient discharged from the hospital. The reliability of the Viet-PSEQ was assessed by Internal consistency reliability (Cronbach's alpha), Observable variables with Item-total correlation (ITC), and Intra-Class Correlation index (ICC).

The Cronbach's alpha value ranges from 0 to 1, with the result classification as high ( $\geq 0.9$ ), very good (0.8 and 0.89), and good (0.7 to 0.79) (Tavakol & Dennick, 2011). Observable variables with Item-total correlation (ITC)  $\geq 0.3$  are accepted (Cristobal et al., 2007). The intra-Class Correlation index (ICC) was used to measure the test-retest reliability, with the classification of the result as good ( $>0.75$ ), mean (0.50-0.75), and unreliable ( $<0.50$ ) (Koo & Li, 2016).

## Data Analysis

Data were analyzed using SPSS 22.0 software on the Windows operating system. Descriptive statistics were computed for all study variables. Cronbach's alpha and Item-total correlation were computed to evaluate the internal consistency reliability of the Viet-PSEQ. The intra-Class Correlation index was computed to evaluate the test-retest reliability of the Viet-PSEQ.

## Ethical Considerations

This study was approved by the Ethical Review Committee of Nam Dinh University of Nursing (approval number: No. 2676/GCN – HỒĐĐ on 22 October 2021) and permission for data collection from the authorities of the hospital. All participants received a full explanation concerning the study, with assured confidentiality, and had the right to refuse or withdraw from the study until the data collection was completed.

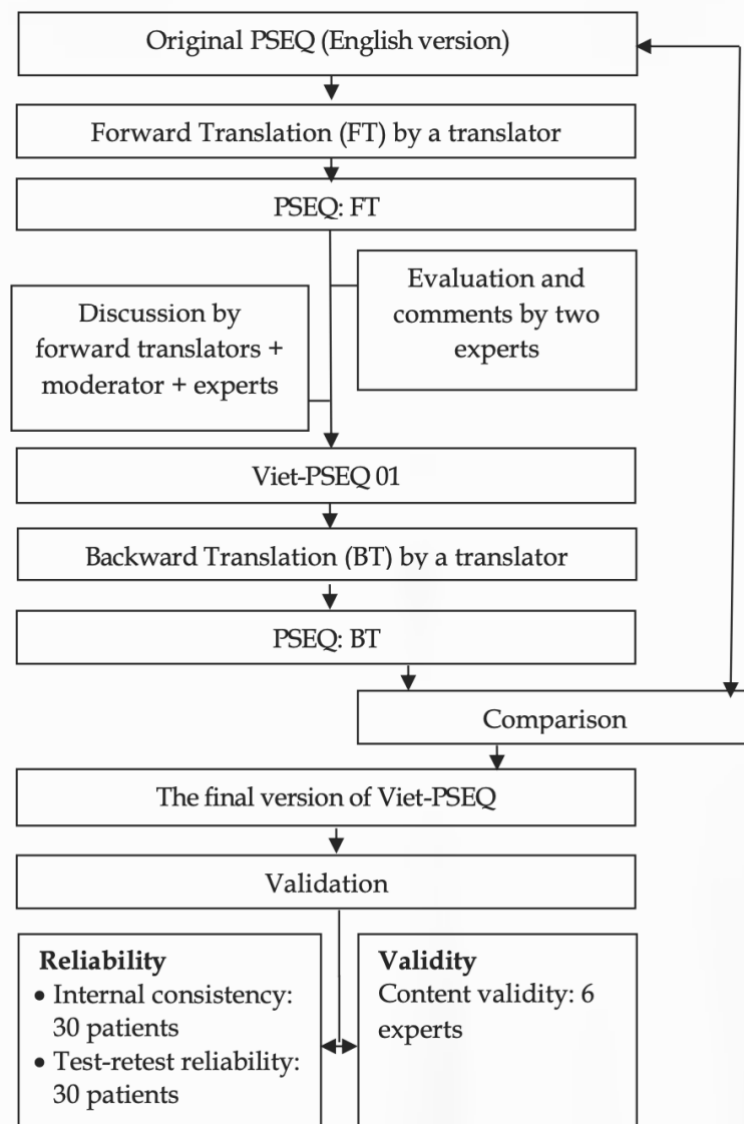


Figure 1 Questionnaire translation and validation process

## Results

### Characteristics of Participants

The study included 30 cancer patients with a mean age of  $60.80 \pm 11.14$  and an average pain score of  $4.33 \pm 1.67$ , ranging from a minimum of 3 points to a maximum of 8 points. The majority of the patients were male (83.3%) and had received lower secondary and high school education (90%). The largest percentage of patients were employed in agriculture (56.7%). The five most common types of cancer among the participants were lung cancer (30%), colon cancer (20%), liver/stomach cancer (10%), and breast cancer (6.7%). A duration of one year or more of the disease was reported by 70% of the patients, while 63.4% of patients were in stages III and IV and 86.7% were receiving medical treatment. All patients undergoing cancer treatment had health insurance coverage, with their primary caregiver being their spouse or child in 90% of cases.

**Table 1** provides a detailed overview of the general characteristics of the cancer patients.

**Table 1** General characteristics of cancer patients (n = 30)

Variable		n	%
Age	30 - 59 years old	10	33.3
	≥60 years old	20	66.7
Gender	Male	25	83.3
	Female	05	26.7
Academic level	Middle School	18	60.0
	High school	09	30.0
	Intermediate and up	03	10.0
Profession	Farmer	17	56.7
	Sales/Service	04	13.3
	Public servants	02	6.7
	Others	07	23.3
Marital status	Married	29	96.7
	Divorced/widowed/separated	01	3.3
Residence	City	04	13.3
	Countryside	12	40.0
	Mountains/midlands/islands	14	46.7
Cancer stage	Stages 1 and 2	11	36.6
	Stages 3 and 4	19	63.4
Type of cancer	Liver Cancer	3	10.0
	Lung cancer	9	30.0
	Stomach cancer	3	10.0
	Breast cancer	2	6.7
	Colon	6	20.0
	Nasopharynx	2	6.7
	Others	5	16.7
Current therapy	Internally medical treatment	16	53.3
	Radiotherapy	01	3.3
	Surgery	3	10.0
	Others	10	33.4
Time with cancer	From 0 to less than 1 year	9	30.0
	From 1 year to less than 3 years	9	30.0
	From 3 years to less than 5 years	5	16.7
	From 5 years or more	7	23.3
Health Insurance	Yes	30	100
	No	0	0
Primary caregiver	Wife or husband	21	70.0
	Child	6	20.0
	Other relatives	3	10.0
Pain score	4.33 ± 1.67 (Min = 3, Max = 8)		

## Validity of the Viet-PSEQ

Scale-content value index (S-CVI) was 0.93. All 10 items of the Viet-PSEQ showed a content validity index higher than 0.78, indicating that the items' content validity was at an acceptable level (Table 2).

Table 2 Content validity of the Viet-PSEQ (n = 6)

Questions	Expert reviews						Total score	I-CVI
	1	2	3	4	5	6		
I can enjoy everything, despite the pain.	1	1	1	1	0	1	5/6	0.83
I can do most household chores (e.g., tidying up, washing dishes, etc.), despite the pain.	1	1	1	1	1	1	6/6	1.0
I can socialize with friends or family members as often as before, despite the pain.	1	1	1	1	1	1	6/6	1.0
I can cope with my pain in most situations.	1	1	1	1	1	1	6/6	1.0
I can do some kind of work, despite the pain (such as housework, paid and unpaid work).	1	1	1	0	1	1	5/6	0.83
I can still do many things I enjoy doing, such as hobbies or recreational activities, despite the pain.	1	1	1	0	1	1	5/6	0.83
I can deal with my pain without painkillers.	1	1	1	1	1	1	6/6	1.0
I can accomplish most of my goals in life by my own, despite the pain.	1	1	1	1	1	1	6/6	1.0
I can live a normal lifestyle, despite the pain.	1	1	1	1	1	1	6/6	1.0
I was gradually able to become more active, despite the pain.	0	1	1	1	1	1	5/6	0.83
S-CVI								0.93

## Reliability of the Viet-PSEQ

Table 3 shows that the correlation coefficient of the total variance of each item ranges from 0.48 to 0.88. Cronbach's alpha value was 0.91. Table 4 shows that the test-retest reliability of the Viet-PSEQ with intra-class correlation coefficient between the first and second total scores being very high: ICC = 0.99,  $p = <0.001$ .

Table 3 Internal consistency reliability of the Viet-PSEQ

Sentence	Content	Total variable correlation
1	I can enjoy everything, despite the pain.	0.64
2	I can do most household chores (e.g., tidying up, washing dishes, etc.), despite the pain.	0.64
3	I can socialize with friends or family members as often as before, despite the pain.	0.79
4	I can cope with my pain in most situations.	0.48
5	I can do some kind of work, despite the pain (such as housework, paid and unpaid work).	0.55
6	I can still do many things I enjoy doing, such as hobbies or recreational activities, despite the pain.	0.61
7	I can deal with my pain without painkillers.	0.66
8	I can accomplish most of my goals in life by my own, despite the pain.	0.81
9	I can live a normal lifestyle, despite the pain.	0.79
10	I was gradually able to become more active, despite the pain.	0.88
Cronbach's alpha		0.91



**Table 4** Test-retest reliability of the Viet-PSEQ (n = 30)

Evaluate	Mean ± SD	Intra-Class Correlation (ICC)	p
1 <sup>st</sup>	22.80 ± 11.70	0.99 (CI95%: 0.975 – 0.994)	<0.001
2 <sup>nd</sup>	24.23 ± 11.19		

## Discussion

Content validity indicates whether the questionnaire questions are relevant to the concept being measured and have adequately represented various aspects of the concept. There are two types of content validity indexes: Item- content value index (I-CVI) and Scale - content value index (S-CVI) (Long, 2021). In our study, the Viet-PSEQ had I-CVI ranging from 0.83 to 1.0 and a high S-CVI level (0.93). According to Lenz (2010), if the questionnaire has six or more assessors, the minimum I-CVI score should be 0.78, and S-CVI should be at least 0.9 (Long, 2021). Thus, based on our research results, the Viet-PSEQ has high content value and ensures the reliability of the questionnaire for research assessment.

In addition to validity, reliability was a critical factor in assessing the quality of the questionnaire used in the study. The Viet-PSEQ's reliability, with respect to both intrinsic consistency and repeat assessments, was evaluated among cancer patients. Table 3 presents the internal consistency of the questionnaire, measured by Cronbach's alpha, which reached a high level of 0.91. This result is consistent with previous research, where the questionnaire achieved values of 0.92 (Nicholas, 2007), 0.92 (Supanimitamorn et al., 2022), 0.94 (Vong et al., 2009), respectively. The total correlation coefficient of each item ranged from 0.48 (question 4) to 0.88 (question 10). All the items had a total variable correlation coefficient of at least 0.3, indicating that the items were valid in assessing intrinsic consistency. This conclusion is consistent with previous studies conducted by Nicholas (2007) with the total variable correlation coefficient from 0.67 (item 7) to 0.84 (items 9 and 10) and Supanimitamorn et al. (2022) ranged from 0.47 (item 3) to 0.84 (items 8 and 9). However, the order of the total variable correlation coefficient of the questionnaires of these authors was different from our study, possibly due to cultural or sample differences. Based on the results of the above analysis, it can be confirmed that the Viet-PSEQ is internally consistent and reliable.

The test-retest reliability of the Viet-PSEQ was evaluated by using the Intra-class Correlation Coefficient (ICC) among 30 participants who were assessed twice at different times: (T1) immediately after the patient entered inpatient treatment, and (T2) before the patient was discharged from the hospital. Table 4 shows that the overall self-analgesia effect of the questionnaire had a very good ICC of 0.99 (CI95%: 0.949 – 0.997). This ICC is higher than that of other PSEQ sets

in different languages, such as ICC 0.76 with the second reevaluation after 4 weeks ([van der Maas et al., 2012](#)), ICC 0.73 with the second reevaluation after 3 months ([Nicholas, 2007](#)), and ICC 0.55 with the second reevaluation after 24 weeks ([Supanimitamorn et al., 2022](#)). This difference may be due to various factors influencing beliefs about self-relief efficacy of cancer patients, such as disease progression, treatment, stressors, and psychological factors. However, it was found that the longer the reevaluation time, the lower the ICC. The Viet-PSEQ demonstrated a very high ICC, indicating its reliability in measuring pain self-efficacy in patients with cancer in Vietnam.

## Limitations

This study has a drawback in that native English speakers did not participate in the translation phase. Despite the study being corrected by inviting translators who have lived and worked in English-speaking countries for a long time, there may still be certain differences from those of native English language speakers.

## Conclusion

The Viet-PSEQ has been found to be valid and reliable, with an I-CVI value ranging from 0.5 to 0.88, an S-CVI of 0.93, a Cronbach's alpha of 0.91, and an ICC of 0.99 (95% CI: 0.949 – 0.997,  $p < 0.001$ ). As a result, healthcare professionals can use the Viet-PSEQ to measure pain self-efficacy in cancer patients in Vietnam.

### Declaration of Conflicting Interest

The authors declare no conflicts of interest concerning the research, authorship, and publication of this article.

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### Authors' Contributions

SDV: Searching for documents, developing outlines, collecting data, writing draft articles, and completing main articles. PCP, CTMN: reviewed the quality and revised the manuscript. ANP: Searching for documents; performed data collection, data cleaning, data entry, and data analysis. All authors made final approval of the manuscript and agreed with the final version of the manuscript.

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### Data Availability Statement

The datasets used and analyzed during the current study are available from the corresponding author upon reasonable request. The Viet-PSEQ is available in the [supplementary file](#).

## Declaration of the Use of AI in Scientific Writing

Nothing to declare.

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